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2006 Midyear Clinical Meeting  
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**Session: Pharmacogenomics 101: From Research to Clinical Practice  
Program #204-000-06-257-L04**

**Moderator: Carol J. Hope**, Pharm.D., M.S., Information Systems Pharmacist, The Johns Hopkins Hospital, Baltimore, MD

**Speaker Contact Information**

Mark J. Ratain, M.D.  
Leon O. Jacobson Professor of Medicine  
Chairman, Committee on Clinical Pharmacology and Pharmacogenomics  
Associate Director for Clinical Sciences,  
Cancer Research Center  
The University of Chicago  
5841 S. Maryland Ave., MC 2115  
Chicago, IL 60637  
[mratain@medicine.bsd.uchicago.edu](mailto:mratain@medicine.bsd.uchicago.edu)

**Presentation**

**The Future of Pharmacogenomics in Clinical Practice**

**Mark J. Ratain**, M.D., Leon O. Jacobson Professor of Medicine; Chairman, Committee on Clinical Pharmacology and Pharmacogenomics; and Associate Director for Clinical Sciences, Cancer Research Center, The University of Chicago, Chicago, IL (PI-167)

**Biography**

**Mark J. Ratain, M.D.**

Dr. Mark J. Ratain received his M.D. from Yale University School of Medicine in 1980. At the University of Chicago he is the Leon Jacobson Professor of Medicine, Chairman of the Committee on Clinical Pharmacology and Pharmacogenomics and Associate Director for Clinical Sciences, Cancer Research Center. He administers NIH Cooperative Agreements utilizing his background as a hematologist/oncologist and clinical pharmacologist. The ultimate goal of Dr. Ratain's research is to help tailor medicines to a person's unique genetic make-up which will ultimately make medicines safer and more effective for everyone. His extensive experience in cancer clinical trials includes 204 original publications.

**Presentation Outline**

The Future of Pharmacogenomics in Clinical Practice

- I. Definition of terms
- II. Therapeutic areas where pharmacogenomic tests represent an unmet need
- III. Examples of validated pharmacogenomic tests
- IV. Limitations of currently available tests
- V. Assessment of value of pharmacogenomic tests
- VI. Scientific and societal challenges in incorporating pharmacogenomic testing into the practice of medicine

## **Abstract**

### **The Future of Pharmacogenomics in Clinical Practice**

Mark J. Ratain, M.D.

The University of Chicago, 5841 S. Maryland Ave., MC 2115, Chicago, IL 60637, USA. Internet: [mratain@medicine.bsd.uchicago.edu](mailto:mratain@medicine.bsd.uchicago.edu)

The recent advances in genomics have enabled the identification of genetic variants that are associated with efficacy and toxicity of a wide variety of agents. Most investigators in pharmacogenomics have focused on understanding the relationship of heritable genetic variants (detectable through testing blood or buccal swabs) to drug effects. Some diseases provide even more opportunities for diagnostic genomic tests, such as cancer and viral infections. Current challenges include confirmation of important findings, evaluation of positive and negative predictive value, assessment of clinical utility and cost-effectiveness, managing unintended consequences of testing, and education of health care providers and payors.

### **Learning Objectives**

1. To understand the various types of pharmacogenomic tests under investigation.
2. To understand the limitations of pharmacogenomic tests.
3. To understand the challenges in implementation of pharmacogenomic tests.

### **Self-assessment Questions**

1. Pharmacogenomic testing of tumor specimens is readily performed on paraffin-embedded tissues.
2. The specificity of a pharmacogenomic test designed to predict toxicity represents the likelihood that a positive test results in a toxic outcome.
3. Health care providers graduating in the year 2007 will be fully equipped to prescribe drugs based on pharmacogenomic tests.

### **Answers**

1. False
2. False
3. False

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**Slides**            **none provided**